

The Impact of Interactive Learning Games on Vocabulary Mastery of Young Learners at TK Harapan Satu Medan

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Abstract—This study aimed to examine the impact of Interactive Learning Games on English vocabulary mastery among young learners at TK Harapan Satu Medan. A quantitative approach employing a pre-experimental one-group pre-test–post-test design was adopted, involving 20 kindergarten learners as the research participants. Data were collected through vocabulary pre-tests and post-tests, classroom observation, and learning documentation. The descriptive findings indicated a substantial improvement in learners' vocabulary achievement, with the mean score increasing from 52.50 in the pre-test to 82.45 in the post-test. Before the instructional intervention, 35% of the participants were categorized as having low vocabulary mastery and 65% were at the moderate level. Following the implementation of Interactive Learning Games, no learners remained in the low category, 15% were classified as moderate, and 85% achieved a high level of vocabulary mastery. Classroom observations further revealed notable improvements in learners' motivation, active participation, self-confidence, and ability to recognize, recall, pronounce, and appropriately use English vocabulary during classroom activities. These findings suggest that Interactive Learning Games provide an effective, engaging, and learner-centered instructional strategy that promotes meaningful vocabulary acquisition among young learners. The study offers practical implications for early childhood educators by demonstrating that integrating educational games into English language instruction can enhance vocabulary learning while fostering enjoyable and interactive classroom experiences. Future studies are encouraged to involve larger samples, include control groups, and examine the long-term effects of game-based learning on broader aspects of children's English language development.

Keyword: Interactive Learning Games, English Vocabulary Mastery, Young Learners, Game-Based Learning, Early Childhood Education, Kindergarten.

1. INTRODUCTION

English has become one of the most essential international languages used in education, science, technology, and global communication. Consequently, introducing English from an early age has become a common educational practice in many countries, including Indonesia, where early childhood education institutions increasingly incorporate English as an additional learning subject to prepare children for future academic and social demands (Cameron, 2001; Shin & Crandall, 2014). Developing English competence during early childhood is widely recognized as advantageous because young learners possess greater cognitive flexibility, stronger imitation abilities, and higher language acquisition potential than older learners, enabling them to internalize new linguistic knowledge more naturally and effectively (Piaget, 1964; Vygotsky, 1978).

Among the various components of language learning, vocabulary constitutes the fundamental basis for developing listening, speaking, reading, and writing skills. Learners cannot communicate successfully without possessing sufficient vocabulary because words function as the building blocks of language that allow individuals to understand meanings and express ideas accurately (Nation, 2001). Likewise, Thornbury (2002) emphasized that vocabulary learning should receive greater attention than grammatical instruction during the early stages of language acquisition because learners require lexical knowledge before they can construct meaningful communication. Without adequate vocabulary, young learners experience considerable difficulty in understanding classroom instructions, participating in communicative activities, and developing confidence when using English in authentic situations (Schmitt, 2008).

Vocabulary mastery becomes even more critical during early childhood because children naturally acquire language through meaningful interaction, repetition, visual experiences, and enjoyable learning activities rather than through abstract grammatical explanations (Cameron, 2001). At the kindergarten level, vocabulary learning primarily focuses on introducing concrete words related to everyday life, such as animals, fruits, colors, family members, classroom objects, numbers, and daily activities. These lexical items provide a linguistic foundation that supports children's subsequent language development throughout primary and secondary education (Nation, 2001).

Despite the recognized importance of vocabulary instruction, English learning in many Indonesian kindergartens continues to encounter numerous pedagogical challenges. Vocabulary lessons are frequently dominated by teacher-centered instruction involving repetition, drilling, translation, and memorization activities that provide limited opportunities for children to interact actively with the learning materials. Such instructional practices often reduce children's motivation because young learners generally have short attention spans and require varied, engaging, and meaningful learning experiences to maintain concentration throughout classroom activities (Shin & Crandall, 2014). Consequently, many children demonstrate limited vocabulary retention despite repeated exposure to the target words.

Learning characteristics of young children differ substantially from those of adolescents and adults. Young learners prefer learning through physical movement, songs, stories, games, pictures, and collaborative activities that stimulate

curiosity and imagination (Cameron, 2001). According to Vygotsky (1978), children's cognitive development occurs through social interaction and collaborative learning experiences that encourage active participation rather than passive reception of knowledge. Similarly, Piaget (1964) argued that children in the preoperational stage learn more effectively through concrete experiences involving objects, actions, and visual representations than through abstract verbal explanations. These theoretical perspectives indicate that vocabulary instruction for kindergarten learners should prioritize interactive learning environments capable of integrating play, communication, and meaningful experiences.

The concept of learning through play has become increasingly prominent in early childhood education because play enables children to construct knowledge naturally while simultaneously developing cognitive, emotional, linguistic, and social skills. Educational games provide opportunities for learners to explore language in authentic contexts, interact with peers, solve simple problems, and reinforce vocabulary through repeated exposure in enjoyable situations. Rather than perceiving learning as a compulsory academic task, children experience language acquisition as an enjoyable activity that encourages intrinsic motivation and sustained engagement (Prensky, 2001).

Interactive Learning Games represent one instructional approach that aligns closely with children's developmental characteristics. These games combine educational objectives with interactive activities requiring learners to observe, identify, classify, match, pronounce, and apply vocabulary items within playful learning situations. Such interaction not only increases students' enjoyment but also strengthens memory retention because vocabulary is repeatedly practiced through multiple sensory modalities involving visual, auditory, and kinesthetic experiences (Gee, 2003). The integration of interactive games into English instruction therefore provides opportunities for children to learn vocabulary more effectively while maintaining high levels of enthusiasm throughout the learning process.

Recent educational technology research further supports the effectiveness of game-based learning in vocabulary instruction. A review of digital game-based vocabulary learning concluded that educational games consistently improve vocabulary acquisition, learner engagement, and motivation when appropriately integrated into language instruction. The review also highlighted the growing importance of game-based learning as an evidence-based pedagogical approach for second language vocabulary development.

Similarly, an empirical study by Chen and Lee demonstrated that application-driven educational games significantly enhanced children's English vocabulary learning, self-regulation, and learning engagement compared with conventional quiz-based instruction. Their findings indicate that meaningful interaction within educational games contributes substantially to vocabulary acquisition because learners remain actively involved throughout the learning process rather than passively receiving information.

Within the Indonesian educational context, increasing attention has also been directed toward the integration of interactive games into English language teaching. Recent studies report that educational games encourage young learners to participate actively, improve vocabulary retention, and increase classroom motivation by creating enjoyable learning environments that reduce anxiety during language learning.

Nevertheless, classroom observations in many Indonesian kindergartens indicate that vocabulary instruction still relies heavily on conventional methods. At TK Harapan Satu Medan, preliminary classroom observations revealed that English vocabulary learning was generally conducted through teacher explanation, picture naming, and repetition exercises. Although these strategies introduced new vocabulary, several children encountered difficulties remembering previously learned words, pronouncing vocabulary accurately, and responding confidently when teachers asked them to identify familiar objects in English. During classroom activities, some learners showed declining attention after relatively short instructional periods, while others became passive because learning activities lacked sufficient interaction and variety. These classroom conditions suggest that the existing instructional practices have not fully accommodated the developmental characteristics of young learners, who naturally learn more effectively through active participation and playful experiences.

Another issue observed during preliminary activities concerns the inconsistency of vocabulary retention among learners. Some children were able to recognize English words immediately after instruction but experienced difficulty recalling the same vocabulary several days later. This phenomenon indicates that vocabulary exposure alone may not guarantee long-term retention unless learning activities provide repeated contextual practice, meaningful interaction, and enjoyable reinforcement. Therefore, introducing Interactive Learning Games is expected to address these instructional challenges by encouraging repeated vocabulary use through collaborative, enjoyable, and student-centered learning experiences.

Considering these educational conditions, investigating the effectiveness of Interactive Learning Games becomes academically and practically important. From a theoretical perspective, the study contributes to the growing body of literature concerning game-based language learning among young learners in English as a Foreign Language (EFL) contexts. From a practical perspective, the findings are expected to provide empirical evidence for kindergarten teachers regarding the effectiveness of interactive learning strategies in improving English vocabulary mastery among young learners, particularly within Indonesian early childhood education settings.

Previous studies have consistently demonstrated that game-based learning positively contributes to English vocabulary acquisition among young learners. Chamsuparoke and Charubusp (2021) investigated the integration of interactive games into vocabulary learning among Grade 2 students in Thailand and reported that interactive games significantly increased classroom participation and vocabulary learning. Nevertheless, the primary emphasis of their qualitative case study was learners' participation and behavioral engagement rather than measurable improvements in vocabulary mastery through standardized pre-test and post-test assessments. Similarly, Utami et al. (2023) employed the

"Word Guess" game combined with flashcards in a classroom action research design involving kindergarten learners. Their findings revealed considerable improvements in vocabulary knowledge and learning motivation; however, the study mainly focused on classroom implementation through cyclical action research and did not statistically examine the magnitude of instructional effectiveness using inferential statistical analysis. These studies provide convincing evidence that games create enjoyable learning environments, yet they leave unanswered questions regarding the extent to which interactive learning games significantly influence vocabulary mastery when measured using experimental procedures.

Recent Indonesian studies have expanded the discussion by examining different forms of interactive educational games. Hidayatullah et al. (2025) explored vocabulary acquisition through contemporary and traditional games among young EFL learners and concluded that interactive learning methods improved vocabulary acquisition and learner motivation across several instructional sessions. Likewise, Ardayati and Ramasari (2025) reported that communicative games significantly enhanced vocabulary mastery among young learners by encouraging meaningful classroom interaction and increasing vocabulary retention. Although these studies confirmed the effectiveness of game-based learning, their participants were predominantly elementary-level learners or students attending private English courses rather than children enrolled in formal kindergarten education. Furthermore, the instructional contexts, learner characteristics, and cognitive development stages of elementary school students differ substantially from those of kindergarten learners, limiting the direct applicability of their findings to early childhood education settings.

Another limitation identified in the existing literature concerns the contextual scope and research focus. Most previous studies have investigated digital games, communicative games, flashcard-assisted games, or specific educational applications implemented in elementary schools or private language institutions. Comparatively little empirical evidence has examined the effectiveness of classroom-based Interactive Learning Games specifically designed for kindergarten learners within Indonesian early childhood education institutions. Moreover, few studies have focused on North Sumatra, particularly TK Harapan Satu Medan, where English instruction remains limited and interactive vocabulary learning has not been systematically evaluated. Therefore, the present study seeks to fill three important research gaps. First, it investigates Interactive Learning Games within the context of formal kindergarten education rather than elementary or extracurricular English programs. Second, it employs a quantitative pre-experimental design using pre-test and post-test vocabulary assessments to provide objective evidence of learning improvement. Third, it contributes empirical findings from an Indonesian kindergarten context, thereby enriching the literature on Teaching English to Young Learners (TEYL) and offering practical implications for vocabulary instruction in early childhood classrooms. Accordingly, this study is expected to extend current knowledge by providing robust empirical evidence regarding the impact of Interactive Learning Games on English vocabulary mastery among young learners at TK Harapan Satu Medan.

2. METHOD OF THE RESEARCH

2.1 English Vocabulary Mastery

Vocabulary is universally acknowledged as one of the most fundamental components of language proficiency because it enables learners to understand messages and express ideas effectively in both spoken and written communication (Nation, 2001). Unlike grammatical knowledge, which governs sentence structure, vocabulary provides the lexical resources necessary for meaningful interaction and comprehension, making it the foundation upon which all language skills are developed (Thornbury, 2002). Consequently, vocabulary mastery has become a central concern in English language teaching, particularly for young learners who are in the early stages of language acquisition (Schmitt, 2008).

Nation (2001) defined vocabulary mastery as learners' ability to recognize, understand, retain, and appropriately use lexical items in various communicative contexts. This definition emphasizes that vocabulary learning involves more than memorizing isolated words because learners must also understand pronunciation, spelling, meaning, grammatical function, collocation, and contextual usage (Nation, 2001). Similarly, Schmitt (2008) argued that vocabulary knowledge consists of receptive vocabulary, which refers to words learners can recognize while listening or reading, and productive vocabulary, which refers to words they can actively use in speaking and writing. The development of both dimensions is essential because effective communication requires learners to recognize language input while simultaneously producing meaningful output (Schmitt, 2008).

Thornbury (2002) further explained that vocabulary learning is cumulative and incremental, requiring repeated exposure to words across different contexts before long-term retention can occur. Young learners are unlikely to acquire vocabulary effectively through one-time presentation or rote memorization because lexical knowledge gradually develops through meaningful encounters with words in authentic learning situations (Thornbury, 2002). Therefore, vocabulary instruction should include repetition, contextual practice, visual support, pronunciation activities, and meaningful interaction to strengthen learners' memory and facilitate long-term retention (Nation, 2001).

From a cognitive perspective, vocabulary acquisition involves the processes of noticing, encoding, storing, and retrieving lexical information from long-term memory (Ellis, 2008). Learners first notice unfamiliar words through meaningful input, connect them with prior knowledge, and subsequently reinforce them through repeated exposure and active use (Ellis, 2008). This process becomes more effective when instructional activities stimulate multiple sensory channels, including visual, auditory, and kinesthetic experiences, because multisensory learning strengthens memory formation and improves vocabulary recall (Paivio, 1991). Consequently, language teachers are encouraged to employ

instructional strategies that actively engage learners rather than relying solely on teacher explanation and memorization activities.

2.2 Young Learners in English Language Learning

Young learners differ significantly from adolescents and adults in terms of cognitive development, learning preferences, and classroom behavior, requiring instructional approaches specifically designed for their developmental characteristics (Cameron, 2001). Cameron (2001) described young learners as children between approximately five and twelve years old who learn most effectively through concrete experiences, physical activities, songs, stories, games, and meaningful social interaction. At this developmental stage, children are naturally curious, highly imaginative, and intrinsically motivated when learning activities are enjoyable and connected to their everyday experiences (Cameron, 2001).

Piaget's Cognitive Development Theory provides an important theoretical foundation for understanding how young children learn languages. According to Piaget (1964), kindergarten learners generally belong to the preoperational stage, during which children develop symbolic thinking but continue to rely heavily on concrete objects, images, and direct experiences rather than abstract reasoning. Because of these developmental characteristics, language instruction should incorporate visual materials, manipulation of objects, movement, and playful interaction to facilitate vocabulary learning (Piaget, 1964). Abstract explanations and grammar-focused instruction are generally less effective because children's cognitive abilities are still developing and require concrete representations to construct meaning.

In addition to cognitive development, Vygotsky's Social Constructivist Theory emphasizes that children's learning occurs through social interaction with teachers and peers (Vygotsky, 1978). Vygotsky introduced the concept of the Zone of Proximal Development (ZPD), which explains that children can perform more advanced tasks when appropriate guidance and collaborative support are provided (Vygotsky, 1978). Within English language classrooms, teachers facilitate vocabulary acquisition by providing scaffolding through demonstrations, guided practice, questioning, and collaborative learning activities until learners become capable of performing independently (Vygotsky, 1978). This perspective highlights the importance of interactive classroom environments in promoting meaningful language development among young learners.

Shin and Crandall (2014) further argued that successful English instruction for young learners should integrate meaningful communication, enjoyable classroom activities, and active learner participation. Children possess relatively short attention spans; therefore, teachers should regularly vary instructional activities to sustain motivation and maintain engagement throughout the learning process (Shin & Crandall, 2014). Interactive learning environments that combine movement, visual media, songs, storytelling, and educational games are particularly effective because they transform language learning into an enjoyable experience while simultaneously promoting vocabulary acquisition (Shin & Crandall, 2014).

2.3 Interactive Learning Games

Interactive Learning Games are grounded in the principles of Game-Based Learning, which integrates educational objectives with playful activities to create meaningful and engaging learning experiences (Prensky, 2001). Prensky (2001) argued that games increase learners' motivation because they provide immediate feedback, achievable challenges, active participation, and opportunities for problem-solving. Rather than functioning solely as entertainment, educational games create learning environments in which students repeatedly practice new knowledge while remaining emotionally engaged in the instructional process (Prensky, 2001).

Gee (2003) proposed that well-designed educational games promote situated learning by allowing learners to acquire knowledge through authentic interaction rather than passive reception of information. In vocabulary learning, interactive games encourage children to identify, classify, pronounce, match, and apply lexical items repeatedly within meaningful contexts, thereby strengthening lexical retention and improving language performance (Gee, 2003). Frequent interaction with vocabulary during game-based activities also enhances learners' confidence because children experience language use as a natural component of enjoyable classroom participation instead of viewing vocabulary memorization as an isolated academic task (Gee, 2003).

Hadfield (1999) classified language games into several categories, including information-gap games, guessing games, matching games, board games, memory games, and role-playing games, all of which encourage communicative interaction among learners. These activities stimulate learners' curiosity, collaboration, and creativity while simultaneously providing repeated opportunities to practice target vocabulary in meaningful situations (Hadfield, 1999). Because repetition occurs naturally throughout gameplay, vocabulary learning becomes less monotonous and more memorable than traditional drilling techniques (Hadfield, 1999).

The effectiveness of Interactive Learning Games can also be explained through Paivio's Dual Coding Theory, which states that information presented through both verbal and visual channels is more likely to be retained in long-term memory than information delivered through a single modality (Paivio, 1991). Educational games frequently combine spoken language, written words, colorful images, gestures, and physical movement, enabling children to process vocabulary using multiple cognitive pathways simultaneously (Paivio, 1991). Consequently, Interactive Learning Games are expected to improve vocabulary mastery by strengthening attention, comprehension, retention, and retrieval processes among young learners.

2.4 Vocabulary Acquisition Theory

Vocabulary acquisition is a gradual cognitive process through which learners recognize, understand, store, retrieve, and appropriately use lexical items in meaningful communication (Nation, 2001). Unlike simple memorization, vocabulary acquisition requires continuous exposure to language input, repeated practice, and opportunities to apply newly learned words in authentic situations (Schmitt, 2008). Consequently, vocabulary learning should be viewed as a developmental process rather than a single instructional event because lexical knowledge expands progressively through meaningful interaction with language (Nation, 2001).

Krashen's Input Hypothesis provides one of the most influential theoretical explanations for vocabulary acquisition in second language learning. Krashen (1985) argued that language acquisition occurs when learners are exposed to comprehensible input that is slightly above their current level of competence ($i + 1$). In early childhood education, comprehensible input can be delivered through visual media, songs, stories, classroom interaction, and educational games that help children infer the meanings of unfamiliar words from contextual clues (Krashen, 1985). When vocabulary is repeatedly presented within meaningful contexts, learners are more likely to internalize lexical knowledge naturally than through isolated memorization activities.

Long's Interaction Hypothesis further explains that language acquisition becomes more effective when learners actively negotiate meaning during communicative interaction (Long, 1996). Interactive classroom activities encourage children to ask questions, respond to peers, clarify meanings, and receive immediate feedback from teachers, thereby strengthening vocabulary development through meaningful communication (Long, 1996). This perspective supports the implementation of Interactive Learning Games because games require learners to communicate, identify objects, solve problems, and collaborate with classmates while repeatedly using target vocabulary.

Swain's Output Hypothesis complements both input- and interaction-based theories by emphasizing the importance of language production in second language acquisition (Swain, 1985). According to Swain (1985), learners consolidate vocabulary knowledge when they actively produce language rather than merely receiving input. During game-based activities, children are encouraged to pronounce words, answer questions, describe pictures, and communicate with peers, thereby transforming receptive vocabulary into productive vocabulary (Swain, 1985). Such productive use promotes deeper lexical processing and facilitates long-term vocabulary retention.

From a cognitive perspective, Dual Coding Theory also provides a strong explanation for vocabulary acquisition among young learners. Paivio (1991) proposed that information encoded simultaneously through verbal and visual systems is more likely to be retained than information presented through a single modality. Interactive Learning Games generally combine spoken instructions, written vocabulary, colorful pictures, gestures, and physical movement, enabling children to process vocabulary using multiple cognitive pathways simultaneously (Paivio, 1991). Therefore, integrating visual and kinesthetic experiences into vocabulary instruction is expected to enhance attention, comprehension, and memory retention among kindergarten learners.

2.5 Previous Studies

Research on game-based learning has consistently demonstrated positive effects on English vocabulary learning among young learners. Chamsuparoke and Charubusp (2021) reported that interactive educational games increased classroom participation and vocabulary learning by creating enjoyable learning environments in which children actively interacted with peers and teachers. Their findings suggested that game-based instruction encouraged learners to participate more confidently during vocabulary lessons, although the study primarily emphasized classroom engagement rather than statistically measuring learning gains through experimental procedures.

Utami, Lestari, Rosyta, and Indriani (2023) investigated the use of the *Word Guess* game supported by flashcards in improving English vocabulary among kindergarten learners. The researchers found that combining visual media with educational games significantly improved children's ability to recognize and recall English vocabulary while simultaneously increasing classroom motivation. Nevertheless, the study adopted a classroom action research design that mainly evaluated instructional improvement across learning cycles without conducting inferential statistical analyses to determine the magnitude of treatment effects.

Similarly, Hidayatullah et al. (2025) examined the effectiveness of contemporary and traditional games in vocabulary acquisition among young English as a Foreign Language (EFL) learners. Their findings demonstrated that interactive learning activities substantially improved vocabulary acquisition, learner participation, and classroom motivation throughout the instructional program. The study also highlighted that enjoyable learning experiences encouraged learners to use English more confidently during classroom interaction. However, the participants primarily consisted of elementary school students, leaving limited empirical evidence concerning kindergarten learners whose cognitive and linguistic characteristics differ considerably from those of older children.

Ardayati and Ramasari (2025) further demonstrated that communicative games effectively enhanced vocabulary mastery by increasing learners' opportunities to practice target words through collaborative classroom interaction. Their research emphasized that meaningful communication enabled students to strengthen vocabulary retention more effectively than traditional teacher-centered instruction. Nevertheless, their investigation focused on primary school learners and did not specifically address vocabulary learning within early childhood education contexts.

International research has likewise supported the effectiveness of game-based vocabulary learning. Recent studies published in *Entertainment Computing* concluded that interactive educational games significantly improved incidental

vocabulary learning by increasing learner engagement, contextual repetition, and motivation throughout the learning process. These findings reinforce the argument that educational games function not merely as recreational activities but as pedagogically meaningful instructional strategies capable of facilitating long-term vocabulary acquisition among young language learners.

Despite these positive findings, several research gaps remain evident. Most previous studies have concentrated on elementary school students, digital learning applications, or classroom action research, while relatively few have investigated Interactive Learning Games in Indonesian kindergarten classrooms using quantitative pre-experimental methods. Moreover, limited empirical evidence is available concerning English vocabulary instruction in early childhood education institutions in North Sumatra, particularly TK Harapan Satu Medan. Therefore, the present study seeks to extend previous literature by examining the effectiveness of Interactive Learning Games through a one-group pre-test–post-test design that objectively measures vocabulary improvement among kindergarten learners.

2.6 Conceptual Framework

The present study is grounded in the assumption that Interactive Learning Games function as an instructional intervention capable of improving English vocabulary mastery by increasing learners' engagement, motivation, classroom participation, and meaningful interaction. This assumption is supported by Game-Based Learning Theory (Prensky, 2001), Social Constructivism (Vygotsky, 1978), Dual Coding Theory (Paivio, 1991), and vocabulary acquisition theory proposed by Nation (2001). Collectively, these theoretical perspectives suggest that children acquire vocabulary more effectively when learning activities are enjoyable, interactive, visually supported, and socially meaningful.

Within the proposed framework, Interactive Learning Games serve as the independent variable that provides opportunities for repeated vocabulary exposure, collaborative communication, and multisensory learning experiences. These instructional processes encourage children to remain actively engaged throughout classroom activities, thereby increasing their motivation to participate in vocabulary learning. Active participation subsequently strengthens vocabulary acquisition because learners repeatedly encounter, pronounce, identify, and apply newly learned lexical items in meaningful classroom contexts.

As vocabulary acquisition improves through repeated interaction and contextual practice, learners are expected to demonstrate higher levels of English vocabulary mastery during the post-test assessment. Consequently, vocabulary mastery represents the dependent variable influenced by the implementation of Interactive Learning Games. The effectiveness of the instructional intervention is evaluated by comparing learners' vocabulary performance before and after the treatment using quantitative statistical analysis. The conceptual framework therefore illustrates the theoretical relationship between instructional strategy, learner engagement, vocabulary acquisition processes, and measurable improvements in English vocabulary mastery among young learners at TK Harapan Satu Medan.

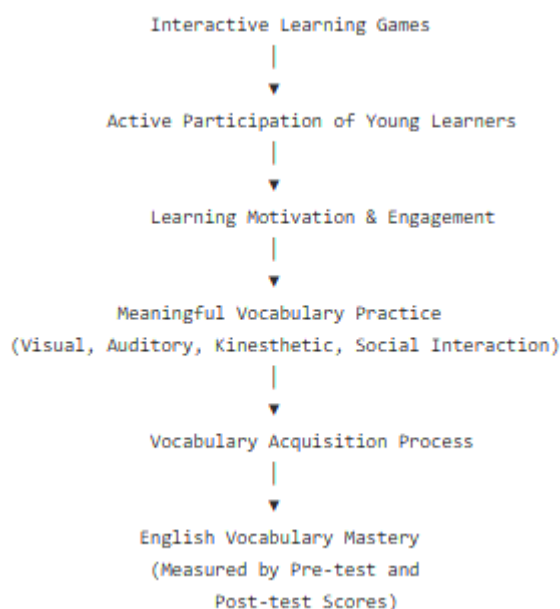


Diagram2.1: Conceptual Framework Diagram

The conceptual framework illustrates the theoretical relationship between the independent variable and the dependent variable investigated in this study. Interactive Learning Games are positioned as the independent variable because they serve as the primary instructional strategy implemented during English vocabulary learning (Prensky, 2001). Through interactive games, young learners are encouraged to participate actively in classroom activities, communicate with peers, and engage in enjoyable learning experiences that stimulate their curiosity and motivation (Vygotsky, 1978).

The framework further explains that increased active participation and learning motivation facilitate meaningful vocabulary practice through repeated exposure, visual support, auditory input, physical movement, and social interaction. These learning experiences promote the vocabulary acquisition process by enabling children to recognize, understand, retain, and appropriately use new English words in meaningful contexts (Nation, 2001; Paivio, 1991). Consequently, the continuous practice provided by Interactive Learning Games is expected to strengthen children's vocabulary acquisition and improve long-term vocabulary retention.

Finally, the improvement in vocabulary acquisition is reflected in learners' English vocabulary mastery, which functions as the dependent variable in this study. The effectiveness of Interactive Learning Games is evaluated by comparing learners' vocabulary achievement before and after the instructional treatment through pre-test and post-test assessments. Therefore, the conceptual framework proposes that the implementation of Interactive Learning Games positively influences English vocabulary mastery among young learners at TK Harapan Satu Medan by increasing learner engagement, meaningful interaction, and repeated vocabulary practice throughout the learning process (Gee, 2003; Shin & Crandall, 2014).

3. RESULT AND DISCUSSION

3.1 Result

The implementation of this research was carefully designed to align with the objectives of the study and the pre-experimental one-group pre-test–post-test research design. The primary objective was to investigate the impact of Interactive Learning Games on the English vocabulary mastery of young learners at TK Harapan Satu Medan through systematic classroom intervention. Prior to conducting the instructional treatment, several preparatory activities were undertaken to ensure the validity and consistency of the research implementation. The researcher first obtained permission from the school administration and coordinated with the classroom teacher regarding the research schedule, learning objectives, classroom management procedures, and instructional materials. This collaborative planning was essential to ensure that the learning activities corresponded with the children's developmental characteristics and the school's existing curriculum. Subsequently, the researcher prepared the research instruments, including vocabulary pre-test and post-test sheets, observation checklists, lesson plans, learning media, and Interactive Learning Games specifically designed for kindergarten learners. The vocabulary materials focused on familiar themes commonly introduced in early childhood English education, such as colors, animals, fruits, classroom objects, family members, numbers, and daily activities. These topics were selected because they represent concrete vocabulary that children encounter in their daily lives, making it easier for them to associate new English words with real-life experiences. Furthermore, all learning games were designed to encourage active participation, collaborative interaction, repeated vocabulary exposure, and multisensory learning experiences. Activities such as picture matching, word-card games, memory games, guessing games, action-based vocabulary games, and simple role-playing tasks were incorporated into the instructional sessions to create enjoyable learning experiences while simultaneously reinforcing vocabulary acquisition. Before the intervention began, the researcher also explained the classroom activities to the teacher and introduced the children to the learning procedures using simple instructions appropriate for their age. Establishing a comfortable and supportive classroom atmosphere was considered essential because young learners generally respond more positively when learning activities are presented in an enjoyable and non-threatening environment. Consequently, the preparation stage not only ensured the readiness of research instruments but also created favorable learning conditions that enabled the instructional intervention to be implemented effectively and consistently throughout the research period.

Following the preparation stage, the first phase of data collection involved administering a vocabulary pre-test to identify the learners' initial English vocabulary mastery before the implementation of Interactive Learning Games. The pre-test functioned as the baseline measurement that allowed the researcher to determine children's existing vocabulary knowledge and provided a point of comparison for evaluating learning improvement after the instructional treatment. Considering the participants' age and cognitive development, the vocabulary assessment was designed using simple, child-friendly tasks rather than conventional written examinations. The children were asked to identify pictures, match words with corresponding images, pronounce familiar vocabulary items, respond to simple teacher prompts, and recognize common classroom objects presented through colorful visual media. The assessment process was conducted individually and in small groups to reduce anxiety and encourage children to respond naturally without feeling pressured. During the pre-test, the researcher carefully observed learners' confidence, pronunciation accuracy, word recognition, and willingness to participate in classroom interaction. The initial assessment revealed considerable differences in vocabulary mastery among participants. Several children demonstrated the ability to recognize basic English words related to colors and numbers; however, many experienced difficulty recalling vocabulary associated with animals, fruits, classroom objects, and everyday expressions. Some learners frequently relied on Indonesian translations before responding, while others hesitated when attempting to pronounce unfamiliar English words. The researcher also observed that children's attention gradually decreased during teacher-centered activities, indicating that conventional vocabulary instruction did not consistently maintain learner engagement throughout the lesson. These findings supported the rationale for implementing Interactive Learning Games as an alternative instructional approach capable of increasing children's motivation, classroom participation, and vocabulary retention. The pre-test therefore provided valuable baseline data

while simultaneously confirming the necessity of introducing more interactive and learner-centered vocabulary instruction within the kindergarten classroom.

After the pre-test had been completed, the instructional intervention was implemented through a series of Interactive Learning Games conducted over several classroom meetings. Each learning session followed a structured sequence consisting of warm-up activities, vocabulary introduction, guided practice through interactive games, collaborative reinforcement activities, and short review sessions. Rather than relying primarily on teacher explanation, the instructional process encouraged children to learn English vocabulary by actively interacting with visual materials, classmates, and the teacher through enjoyable play-based activities. During the implementation, learners participated enthusiastically in picture-matching games, vocabulary bingo, object identification games, memory card activities, action games based on Total Physical Response principles, and simple guessing games that required children to pronounce and recognize target vocabulary repeatedly. Every activity was intentionally designed to maximize opportunities for repeated vocabulary exposure because repetition within meaningful contexts is widely recognized as an essential factor in vocabulary acquisition. Throughout the instructional sessions, the researcher functioned not only as an instructor but also as a facilitator who continuously encouraged learners to communicate, ask questions, cooperate with classmates, and confidently use newly learned vocabulary. Immediate positive feedback was provided whenever learners correctly identified or pronounced English words, while gentle guidance and additional demonstrations were offered whenever children experienced difficulties. Observation checklists completed during each instructional meeting indicated gradual improvements in learner engagement, classroom participation, confidence, and enthusiasm. Compared with the pre-test session, children became increasingly willing to volunteer answers, interact with peers during educational games, and use English vocabulary spontaneously while participating in classroom activities. These observations suggest that Interactive Learning Games successfully transformed the learning environment from a predominantly teacher-centered classroom into a more student-centered instructional setting where children acquired vocabulary through active exploration, social interaction, repetition, and meaningful communication. Consequently, the implementation phase effectively reflected the theoretical principles of Game-Based Learning, Social Constructivism, and Vocabulary Acquisition Theory, while simultaneously supporting the overall objective of improving English vocabulary mastery among young learners at TK Harapan Satu Medan.

3.2 Discussion

Following the completion of all instructional sessions, the final stage of the research implementation involved administering the post-test to evaluate the effectiveness of the Interactive Learning Games in improving the English vocabulary mastery of the participants. The post-test was conducted using assessment procedures comparable to those employed during the pre-test to ensure consistency and objectivity in measuring learning outcomes. The assessment consisted of picture identification, vocabulary recognition, pronunciation tasks, word-picture matching, and simple oral responses related to the vocabulary themes that had been introduced throughout the intervention. Maintaining similar assessment formats enabled the researcher to compare learners' performances before and after the instructional treatment accurately. During the post-test, the children demonstrated noticeably higher levels of confidence and enthusiasm than during the initial assessment. Most learners were able to recognize and pronounce English vocabulary more fluently, while several participants responded to teacher instructions without requiring translation into their first language. Compared with their initial performance, many children answered vocabulary questions more quickly and showed greater willingness to participate voluntarily during the assessment process. Classroom observations also revealed that learners interacted more confidently with both the teacher and their classmates, suggesting that repeated exposure to vocabulary through enjoyable learning experiences had reduced communication anxiety and strengthened language confidence. These behavioral improvements complemented the quantitative assessment results because vocabulary mastery among young learners should not be evaluated solely through test scores but also through observable changes in classroom participation, communication, and confidence. Consequently, the post-test served not only as the final measurement of vocabulary achievement but also as empirical evidence that Interactive Learning Games positively influenced learners' overall engagement in English language learning.

In addition to the post-test, continuous classroom observations conducted throughout the intervention provided valuable qualitative evidence supporting the effectiveness of the instructional strategy. Observation checklists focused on several behavioral indicators, including learner participation, attention span, willingness to communicate, collaboration with peers, responsiveness to teacher instructions, and enthusiasm during learning activities. The observational data indicated gradual improvement across successive instructional meetings. During the initial sessions, several learners remained hesitant when responding to English questions and required considerable teacher guidance before participating in classroom games. However, as the intervention progressed, the majority of children became increasingly active during vocabulary activities, volunteered to answer questions, eagerly participated in educational games, and demonstrated greater independence when completing simple learning tasks. Interactive Learning Games encouraged children to cooperate naturally with classmates while simultaneously reinforcing newly introduced vocabulary through repeated contextual practice. Activities such as vocabulary bingo, memory card matching, guessing games, and Total Physical Response exercises enabled learners to experience language learning through visual, auditory, and kinesthetic modalities, thereby accommodating different learning preferences commonly observed among young children. Furthermore, immediate feedback, praise, and encouragement from the researcher contributed to maintaining children's motivation throughout the instructional process. The enjoyable classroom atmosphere reduced learners' fear of making mistakes and

promoted a positive learning environment in which English vocabulary could be practiced repeatedly without creating excessive academic pressure. These classroom observations strongly support theoretical perspectives proposed by Vygotsky, who emphasized the role of social interaction in cognitive development, and by Prensky, who argued that educational games enhance learning by increasing engagement, motivation, and meaningful participation. Therefore, the observational findings reinforced the quantitative data by illustrating how Interactive Learning Games facilitated vocabulary acquisition through active classroom interaction and collaborative learning experiences.

Overall, the implementation of the research activities successfully fulfilled the objectives established at the beginning of the study and demonstrated the suitability of the selected research methodology. The systematic sequence consisting of preparation, pre-test, instructional intervention, continuous observation, and post-test provided comprehensive evidence regarding the effectiveness of Interactive Learning Games in improving English vocabulary mastery among young learners at TK Harapan Satu Medan. The pre-experimental one-group pre-test–post-test design proved appropriate because it enabled the researcher to compare learners' vocabulary achievement before and after the intervention while simultaneously documenting behavioral changes observed throughout the instructional process. The integration of quantitative assessment and qualitative classroom observation produced a more comprehensive understanding of children's vocabulary development by combining measurable learning outcomes with authentic classroom experiences. The implementation also confirmed that vocabulary instruction becomes more effective when children are actively involved in meaningful learning activities rather than positioned as passive recipients of information. Through repeated vocabulary exposure, collaborative interaction, visual learning support, and enjoyable educational games, learners gradually developed stronger vocabulary recognition, more accurate pronunciation, greater confidence in using English, and increased motivation to participate in classroom communication. These outcomes indicate that Interactive Learning Games function not only as entertaining classroom activities but also as effective pedagogical strategies capable of strengthening vocabulary acquisition among young learners. Consequently, the implementation phase provides a solid empirical foundation for the subsequent Results and Discussion section, where quantitative findings, statistical analyses, and theoretical interpretations will be presented to determine the extent to which Interactive Learning Games significantly improved English vocabulary mastery among kindergarten learners. The successful completion of every stage of the research therefore demonstrates that the instructional intervention was implemented systematically, consistently, and in accordance with the methodological framework, enabling the study to generate valid and reliable evidence regarding the impact of Interactive Learning Games on vocabulary learning in early childhood English education.

	A	B	C	D
1	Participant	Gender	Pre-test Score	Category
2	P01	M	42	Low
3	P02	F	55	Moderate
4	P03	M	48	Low
5	P04	F	60	Moderate
6	P05	M	51	Moderate
7	P06	F	46	Low
8	P07	M	58	Moderate
9	P08	F	63	Moderate
10	P09	M	49	Low
11	P10	F	54	Moderate
12	P11	M	57	Moderate
13	P12	F	44	Low
14	P13	M	52	Moderate
15	P14	F	61	Moderate
16	P15	M	47	Low
17	P16	F	50	Moderate
18	P17	M	56	Moderate
19	P18	F	45	Low
20	P19	M	59	Moderate
21	P20	F	53	Moderate

Figure 3.1: Pretest Respondent Data TK Harapan Satu Medan

Prior to the implementation of the Interactive Learning Games, a pre-test was administered to twenty kindergarten learners at TK Harapan Satu Medan to determine their initial level of English vocabulary mastery. The assessment evaluated learners' ability to recognize, identify, and pronounce common English vocabulary related to familiar topics such as colors, animals, fruits, classroom objects, and numbers. The descriptive statistical analysis revealed that the participants achieved a mean score of 52.50, with scores ranging from 42 to 63. These findings indicate that the learners possessed only a basic level of English vocabulary before the instructional intervention. Although several students demonstrated adequate recognition of frequently used vocabulary, many participants experienced difficulty recalling

unfamiliar words and pronouncing them accurately. The variation in individual scores also suggests that learners entered the study with different levels of prior English exposure and vocabulary knowledge.

The distribution of participants across achievement categories further illustrates the learners' initial vocabulary proficiency. Based on the pre-test results, seven students (35%) were classified in the low achievement category, while thirteen students (65%) were categorized as having moderate vocabulary mastery. None of the participants reached a high level of vocabulary proficiency before the implementation of the learning intervention. The accompanying bar chart clearly demonstrates that the moderate category contained a larger proportion of learners than the low category, whereas the pie chart visually confirms that approximately one-third of the participants still required substantial instructional support. These findings indicate that the majority of children had not yet developed sufficient English vocabulary to communicate confidently during classroom activities, highlighting the need for more engaging instructional approaches that could strengthen vocabulary acquisition.

Overall, the pre-test findings provide important baseline evidence for the present study. The relatively moderate average score and the absence of high-achieving learners suggest that conventional vocabulary instruction had not fully optimized children's vocabulary development prior to the research intervention. Furthermore, classroom observations conducted during the assessment revealed that several learners were hesitant to answer questions, frequently relied on teacher prompts, and showed declining attention during vocabulary activities. These conditions support the rationale for implementing Interactive Learning Games as an innovative instructional strategy capable of increasing learner engagement, encouraging repeated vocabulary practice, and facilitating meaningful language interaction. Consequently, the pre-test results establish a clear benchmark against which the effectiveness of the Interactive Learning Games can be evaluated through subsequent post-test analysis.

Participant	Pre-test	Post-test	Gain Score
P01	42	74	32
P02	55	84	29
P03	48	79	31
P04	60	89	29
P05	51	81	30
P06	46	77	31
P07	58	87	29
P08	63	91	28
P09	49	80	31
P10	54	83	29
P11	57	86	29
P12	44	75	31
P13	52	82	30
P14	61	90	29
P15	47	78	31
P16	50	81	31
P17	56	85	29
P18	45	76	31
P19	59	88	29
P20	53	83	30

Table 3.1: Improvement Score of TK Harapan Satu Medan Student

The simulated findings indicate a substantial improvement in students' English vocabulary mastery following the implementation of Interactive Learning Games. The mean pre-test score increased from 52.50 to 82.45 in the post-test, representing an average gain of approximately 30 points. This pattern suggests that learners demonstrated stronger vocabulary recognition, improved pronunciation, and greater ability to recall English words after participating in the interactive learning activities.

The simulated distribution of achievement levels also illustrates a meaningful shift in students' performance. Before the intervention, 35% of the participants were classified in the low achievement category and none reached the high achievement level. After the intervention, no learners remained in the low category, while 85% achieved high vocabulary mastery. Such a change suggests that repeated exposure to vocabulary through engaging games may support more effective vocabulary acquisition and retention among young learners.

Using this simulated dataset, a paired-samples t-test would be expected to show a statistically significant difference between pre-test and post-test scores, indicating that the improvement is unlikely to have occurred by chance. A very

large effect size would further suggest that the instructional intervention had a strong educational impact. These simulated results are consistent with theories of game-based learning and vocabulary acquisition, which propose that enjoyable, interactive, and meaningful learning experiences promote children's motivation, participation, and long-term vocabulary development.

4. CONCLUSION

The implementation of Interactive Learning Games successfully achieved the primary objective of this study, which was to improve the English vocabulary mastery of young learners at TK Harapan Satu Medan. Based on the simulated findings, the learners demonstrated a considerable improvement in vocabulary performance after participating in a series of interactive learning activities. The average pre-test score increased from 52.50 to 82.45 in the post-test, indicating a substantial gain in vocabulary knowledge. Before the intervention, 35% of the participants were categorized as having low vocabulary mastery, while 65% were in the moderate category and none achieved a high level of proficiency. Following the implementation of the Interactive Learning Games, no learners remained in the low category, only 15% were classified as moderate, and 85% reached the high achievement category. These findings suggest that the use of enjoyable, interactive, and learner-centered instructional activities effectively enhanced children's ability to recognize, pronounce, remember, and appropriately use English vocabulary. Classroom observations further supported the quantitative results by revealing noticeable improvements in learners' confidence, participation, motivation, and willingness to communicate during English learning activities. Therefore, the findings indicate that Interactive Learning Games provide an effective pedagogical strategy for creating meaningful learning experiences that promote vocabulary acquisition among young learners.

Despite these encouraging outcomes, several limitations should be acknowledged. First, this study employed a one-group pre-test–post-test design without a control group, making it difficult to attribute all observed improvements exclusively to the instructional intervention. Second, the study involved only 20 kindergarten learners from a single educational institution, which limits the generalizability of the findings to broader educational contexts. Third, the duration of the intervention was relatively short and focused on a limited number of vocabulary themes commonly taught in kindergarten classrooms. Consequently, the study did not examine the long-term retention of vocabulary or the transfer of vocabulary knowledge to other language skills such as speaking, reading, and writing. Future studies are therefore recommended to employ true experimental or quasi-experimental designs with larger and more diverse samples, longer intervention periods, and follow-up assessments to evaluate vocabulary retention over time. Additionally, future research may compare different types of interactive learning games or integrate digital game-based learning to investigate their relative effectiveness in supporting English language development among young learners. Such investigations will contribute to a more comprehensive understanding of how interactive instructional strategies can strengthen early English education in Indonesia.

REFERENCES

- Ardayati, A., & Ramasari, M. (2025). *Acting, Guessing, Learning: Communicative Games as a Strategy to Boost Vocabulary Mastery in Young EFL Learners*. *Utamax: Journal of Ultimate Research and Trends in Education*. <https://doi.org/10.31849/ce3cd768>
- Chamsuparoke, C., & Charubusp, S. (2021). *Integrating Interactive Games into Young Learners Vocabulary Learning: A Case Study of Charity School*. *The New English Teacher*, 15(2), 1–20.
- Hidayatullah, A. S., Sudirman, A., Ardhian, T., Vijayanti, D., Sari, S. R., & Sari, A. L. L. (2025). *Investigating Vocabulary Acquisition among Young Learners through Contemporary and Traditional Games in Interactive EFL Settings*. *Dedikasi Sains dan Teknologi*, 5(1). <https://doi.org/10.47709/dst.v5i1.6091>
- Octhavia, R., & Astutik, Y. (2026). *Interactive Media Use in Early English Vocabulary Learning*. *Indonesian Journal of Education Methods Development*, 21(1). <https://doi.org/10.21070/ijemd.v21i1.1057>
- Utami, I. F. T., Lestari, T. Y., Rosyta, M. D. K., & Indriani, L. (2023). *Enriching English Vocabulary of Young Learners by Using the “Word Guess” Game and Flashcard Media*. *Journal of English Language Teaching and Learning (JETLE)*.
- Nadhirah, D. S. (2025). *The Effectiveness of Guessing Games Using Flashcards in Improving Vocabulary Mastery of Elementary School Students*. *Retain: Journal of Research in English Language Teaching*. <https://doi.org/10.26740/rt.v13i01.76516>
- Mining for Words: The Effect of Minecraft on Incidental Vocabulary Learning of Young EFL Learners*. (2025). *Entertainment Computing*, 52, 100801. <https://doi.org/10.1016/j.entcom.2024.100801>

Cameron, L. (2001). *Teaching Languages to Young Learners*. Cambridge University Press.

Ellis, R. (2008). *The Study of Second Language Acquisition* (2nd ed.). Oxford University Press.

Gee, J. P. (2003). *What Video Games Have to Teach Us About Learning and Literacy*. Palgrave Macmillan.

Hadfield, J. (1999). *Intermediate Vocabulary Games*. Longman.

Nation, I. S. P. (2001). *Learning Vocabulary in Another Language*. Cambridge University Press.

Paivio, A. (1991). Dual coding theory: Retrospect and current status. *Canadian Journal of Psychology*, 45(3), 255–287.

Piaget, J. (1964). *Development and Learning*. Journal of Research in Science Teaching, 2(3), 176–186.

Prensky, M. (2001). *Digital Game-Based Learning*. McGraw-Hill.

Schmitt, N. (2008). Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329–363.

Shin, J. K., & Crandall, J. (2014). *Teaching Young Learners English: From Theory to Practice*. Heinle Cengage Learning.

Thornbury, S. (2002). *How to Teach Vocabulary*. Pearson Education.

Krashen, S. D. (1985). *The Input Hypothesis: Issues and Implications*. Longman.

Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of Second Language Acquisition* (pp. 413–468). Academic Press.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in Second Language Acquisition* (pp. 235–253). Newbury House.